



## THE RAVEN / RVS

### BACK GROUNG OF THE INVENTION

USING TWO DOUBLE SIDE BAND FULL CARRIER, AM TRANSMITTER TO PRODUCE A STERIO AND ONE OTHER TRANSMITTER EITHER AM OR NBFM IN THE AM BAND TO PRODUCE THE SLOW CAN VIDEO ON AM BAND 8khz DOWN FROM THE MAIN AUDIO CARRIER AND WITH THE USE OF DIPLEXER, AN ANTENNA TUNER AND ALSO AN ANTENNA STACKER EARTH GROUNDED THERE WOULD BE GOOD SAPERATION OF THE AN STATION'S AUDIO AND VIDEO WITHIN A 15khz BANDWIDTH.

SINLE SIDEBAND SUPRESS CARRIER WILL WORK WELL FOR THE SLOW SCAN VIDEO ALSO BUT LIKE NBFM, ONE WOULD NEED SPECIAL RECIEVERS FOR THOSE TWO MODULATIONS.

USING NBFM IN THE AM BAND WILL ENABLE THE VC-HI TO USE THE FAST FM MODE, THE FAX LIKE BEEPS WILL BE VERY FAINT OVER THE AM RECIEVER IF TUNED TO THE VIDEO FREQUENCY.

THIS SYSTEM FOR SLOW SCAN VIDEO CAN BE USED FOR FM RADIO , USING THE RDS 57khz OR THE SCA 67khz ABOVE THE MAIN CARRIER OF THE FM CHANNEL. THIS FREEZE FRAME VIDEO KNOWN AS SSTV.

FSTV OPERATORS COULD RUN SSTV OVER THEIR SAP (SECOND AUDIO PROGRAMME) OF THE COMMERCIAL TV STATION.

SOME A TV OPERATORS DO RUN VIDEO ON THE AM CARRIER, AUDIO ON THE FM - 1 CARRIER, AND SSTV ON THE FM-2 CARRIER.

THIS AM VIDEO SYSTEM IS DIFFERENT FROM MR. KHAN'S AM AUDIO/DATA SYSTEM BECAUSE THE DATA TI EMBEDDED IN THE AUDIO.

SSTV WILL NOT MIX WITH AUDIO, THAT IS WHY THERE IS A REQUENCY DIFFERENCE IN THE RAVEN SYSTEM, AND ALSO THE FCC DOES NOT CONSIDER SSTV PICTURE INFORMATION AS DATA.

THE AUTOSWITCH LM555 TIMING CIRCUIT (DESIGNED AND BUILT BY THIS INVENTOR) ENABLES TO BROADCAST ONE TO TWO PICTURES PER MINUTE. RIGHT NOW THE IBOC DIGITAL AM SYSTEM REQUIRES A CHANNEL BANDWIDTH OF 30khz AND NO VIDEO AS OF YET!!!

## **THE RAVEN / RVS**

### **SUMMARY OF THE INVENTION**

PRESENT INVENTION ENABLES THE AUDIO AND SLOW SCAN TV SIGNALS TO BE TRANSMITTED OVER THE SAME 15khz WIDE CHANNEL ON THE AM BAND. EXAMPLE: 690khz TO 705khz IN WHICH THE VIDEO CARRIER IS AT 692khz @BW OF 4khz (690khz TO 694khz) AND THE AUDIO CARRIER IS AT 700khz @BW OF 10khz(695khz TO 705khz). \*PLEASE NOTE 15khz WIDE ST 700KHZ CAN ALSO MEAN 692.5khz TO 707.5khz.

FOR AM VIDEO, AND AM ANALOG RADIO WITH AN ANALOG TUNER CAN BE DIRECTLY TUNED TO 692khz. AN ANALOG RADIO WITH A DIGITAL TUNER, CAN BE TUNED TO 690khz FOR THE VIDEO. BY LISTINING FOR THE FAX LIKE BEEPS BEFORE PLUGING IN A SLOW SCAN CONVERTOR IN THE HEADPHONE JACK OF THE AM RECIEVER BEING USED FOR THE VIDEO. (FOR FM VIDEO, THE SAME CAN BE DONE BY USING AN FM RECIEVER FOR THE BAND BEING USED), THE SAME AM ANALOG RECIEVER WILL TUNE IN THE AUDIO AT 700khz.

A WALKMAN STYLE RCA AM FM STEREO CASSETTE PLYER # RP-1872C WAS USED TO CHECK THE ON AIR FRQUENCIES, ALSO USED WAS A RADIO SHACK DMM 22-174B SET FOR HZ/KHZ AND A GW-INSTEK DIGITAL FREQUENCY COUNTER # GCF-8010H TO CHECK THE FREQUENCY.

ALL TRANSMITTERS USED ARE HOBBY BROADCAST EQUIPMENT AND ARE OF NAME BRANDS RAMSEY AND NORTH COUNTRY RADIO.

THREE RECIEVERS WERE USED, TWO FOR RECEIVING THE STERIO IN THE SAME MANNER USED FOR RECEIVING THE KAHN AM STEREO SYSTEM . EXCEPT IN THE CASE OF THE RAVEN/RVS, THE RIGHT CHANNEL RECIEVER IS TUNED RIGHT ON THE FREQUENCY DUE TO THE PHASE LOCK LOOP OF THE AM 25 TRANSMITTER, THE LEFT CHANNEL RECIEVER IS TUNED SLIGHTLY OFF TH THE LEFT OF THE FREQUENCY.

NOW THE THIRD AM RECIEVER NEED THE USE OF A SLOW SCAN CONVERTOR LIKE THE KENWOOD VC-H1, SUCH AS THE ONE USED AT THE TRANSMITTER SITE, THE ONLY DIFFERENCE BEING THE VC-H1 AT THE TRANSMITTER SITE IS IN THE AUTO TRANSMITT (ONCE EVERY 3 MINUTES) MODE, WHICH IS TOO SLOW FOR COMMERCIAL BROADCAST USE. A 555 TIMING CIRCUIT WAS BUILT TO CAUSE THE AUTO MODE TO TRANSMITT A NEW PICTURE EVERY MINUTE, AND WITH \* LIVE ACTION CAPTURE\* BUILT IN BY KENWOOD, THERE IS NO NEED TO STOP THE ACTION OR POSE TO SEND A NEW PICTURE. FURTHERMORE THE VC-H1 AT THE TRANSMITTER SITE WILL NOT RECEIVE WHEN IT IS IN THE AUTO TRANSMITT MODE, THEREFORE THERE WILL BE NO VIDEO INTERFERENCE FROM OTHER RADIO STATIONS USING THE SAME SYSTEM.

# THE RAVEN / RVS

## BRIEF DISCRIPTION OF THE DRAWINGS AND THE PREFERRED EMBODIMENTS

FIG.1. BLOCK DIAGRAM OF THE RAVEN/RVS SYSTEM

OTHER DRAWINGS ARE SCHEMATICS OF: RAMSEY STC-1 ; RAMSEY AM 25 TRANSMITTER; RAMSEY AM 1 TRANSMITTER NORTH COUNTRY RADIO AM 88 TRANSMITTER; SCHEMATIC OF - 45 DEGREES + 45 DEGREES RIGHT AND LEFT CHANNEL PHASE NETWORKS.; KENWOOD VC-H1 CABLE SETUPS (TWO STEETS) ALSO LM 555 AUTOSWITCH.

ONE NOTARIZED LOG OF THREE HAND DRAWINGS ON ONE SHEET, THE TESTING OF AM AUDIO ON THE AM BAND, FIRST TEST OF FM PICTURE FM BAND, SECOND TEST OF AM PICTURE AM BAND AND FINALLY FM PICTURE AM BAND. (ALL TESTS WERE AM AUDIO ON AM BAND)

ONE, VHS TAPE OF ON AIR OPERATIONS OF THE RAVEN RVS.

FOUR PAGES OF COLOURED PICTURES OF RAVEN RVS IN ACTION.

AFTER THE RAMSEY STC-1 STEREO LIMITER A RAMSEY AM one TRANSMITTER WITH A DISABLED OSCILLATOR (C7, Q6, AND Q5 HAVE BEEN REMOVED).

THE RAMSEY AM PRO-25 TRANSMITTER WITH ITS ANT. OUT, GOING INTO THE RF OF THE AM-1 TRANSMITTER VIA R10.

ALSO THE AM PRO-25. ANOTHER Q9 WAS ADD 9COLLECTOR TO COLLECTOR, BASE TO BASE, AND EMITTER TO EMITTER) IN PARREL WITH THE ORIGONAL Q9, BOTH WITH COOLING FINS.

CHANGED R23 VARIABLE RESISTOR FROM 1KOHM TO 10 KOHM AND CHANGED R5 FROM 1KOHM FIXED RESISTOR TO A 10 KOHM VARIABLE RESISTOR AND LASLTLY ADDED A 12 VOLT COOLING FAN FROM AN OLD COMPUTER FOR EXTRA STRONG COOLING; NOW THE TOP COVER NO LONGER FITS THE AM PRO 25. A KENWOOD VC-H1 INPUTS INTO A DE-EMPHASIS NETWORK THAT INPUTS INTO AN AM 1 WHOSE FILTER NETWORK L3 IS UNCHANGED BUT C12 AND C14 VALUES HAVE BEEN CHANGED FROM .0022 UF TO .02 UF, TO OBTAIN THE BANDWIDTH OF 4khz AND THAT OUTPUT IS THEN COUPLED TO THE MAIN ANTENA ALONG WITH THE OUTPUT OF THE STEREO SIGNAL FROM THE AM 1- AM 25 TRANSMITTER COMBINATION.

BOTH THE AUDIO AND THE VIDEO TRANSMITTER SYSTEMS USE THE SAME ANTENNA WITH NO LOSS OF POWER DUE TO THE ANTENNA TUNER AND DIPLEXER.

AM 88 TRANSMITTER CAN BE USED FOR FM PICTURES IN THE AM BAND, THEREFORE THERE IS NO NEED TO MODIFY AN AM 1 FOR THAT PURPOSE.

## **THE RAVEN / RVS**

### **VIDEOS RECOMMENDED POWER LEVELS FOR AM STEREO**

#### **PLUS MINUTE-BY-MINUTE STILL LIFE**

#### **COMMERCIAL BROADCAST U.S. AM RADIO STATIONS**

##### **AUDIO**

##### **VIDEO**

50kw

5kw

25kw

10kw

5kw

2.5kw

1kw

1kw

500w

250w

100w

100w

#### **LOW POWER AM PART - 73**

99w

50w

35w

25w

10w

10w

5w

2w

### **HOBBY BROADCAST AM PART – 15**

1w

.75w

1w

.25w

THE VIDEO POWER RECOMMENDATIONS ARE FOR AM PICTURES. ANTENNA HEIGHT SHOULD BE CONSIDERED FOR FM PICTURES, SUCH AS, IF THE ANTENNA HEIGHT IS 1160 FEET THEN THE MAXIMUM VIDEO POWER WOULD BE ANY WHERE FROM 3kw TO 6kw, FOR COMMERCIAL BROADCASTING.

### **THE RAVEN / RVS**